

Ms. Marlene H. Dortch
Secretary Federal Communications Commission
445 12th Street SW
Washington, DC 20554

September 28, 2011

Re: Notice of Ex Parte Presentation in LightSquared Subsidiary LLC Request for
Modification of its Authority for an Ancillary Terrestrial Component, IB Docket No. 11-109
IBFS File No. SATMOD2010111800239

Dear Ms. Dortch:

On September 28, 2011, at the request of Michael Ha, Hemisphere GPS attended a
teleconference with the following personnel from the FCC:

Michael Ha, Office of Engineering and Technology (OET)
Ron Repasi, OET
Chip Fleming, International Bureau (IB)
Sankar Persaud, IB

From Hemisphere GPS the following personnel attended the call:

Bradley P. Badke PhD, Senior Principal Systems Engineer

Hemisphere GPS designs and manufactures innovative, cost-effective GNSS (GPS, Glonass, Galileo, etc) and complimentary products for positioning, guidance, machine control and agriculture applications. In the last 20 years, we have established numerous patents and other intellectual property. Hemisphere GPS is a global company with sales in more than 35 countries.

The purpose of this teleconference was to discuss the performance of two Hemisphere GNSS receivers in the presence of LightSquared interference at the Pax River Naval Air Station indoor anechoic chamber (also known as the NAVAIR FARM). In particular we discussed the performance of a wideband multi-frequency GPS/Glonass/OmniStar receiver (code name H09956) and a wide bandwidth GPS L1 only (single frequency) receiver (code name H13565). The H13565 was less degraded by the LightSquared signals than the H09956 receiver but it was not immune to LightSquared interference. The reason the H13565 performed better than the H09956 is that it is not as wide-band as the H09956. The testing at NAVAIR covered several signal configurations. They are listed below in order from most degradation to least degradation.

1. 10L+10H (most degradation of L1 GPS)
2. 10H
3. 5L+5H
4. 5H
5. 10L
6. 5L
7. HS (handset) (least degradation of L1 GPS)

Further, we discussed the fact that Glonass was not tested nor were any of the new wider band GPS, Galileo and Compass signals that would possibly be more degraded than GPS L1.

Hemisphere also discussed the fact that it is important that the FCC not allow a creeping specification for the LightSquared signal. GNSS manufacturers need to have a solid specification before designing any new GNSS receivers for the LightSquared interference environment.

Hemisphere also discussed the fact that many of the precision receivers in question have wideband antennas and an initial wideband filtering stage prior to the first LNA to accommodate what are known as the L-Band signals (OmniStar, for example). This wideband signal then goes through a diplexer or power divider and passes through further filtering at both RF and IF frequencies to select the desired signal of interest (GPS L1, GPS L2, GPS L5, OmniStar, Glonass L1, Glonass L2, Galileo, etc.). This refutes the statement seen in the popular press that GPS manufacturers do not use filtering in their receivers.

Hemisphere's unofficial participation in the Live Air testing in Las Vegas, Nevada was also discussed. Hemisphere tested several more receivers for one night only at the location known as the "rural sight". The "rural sight" was the cell tower located closest to Boulder City, Nevada. The night of Hemisphere's participation in this test, unfortunately, was one of the nights that the LightSquared signal was 3dB low. The Las Vegas, Nevada tests only tested the 5H+5L configuration. The performance of the Hemisphere receivers was about as expected, including the performance of two medium bandwidth GPS L1 only receivers that were designed for a high interference marine environment. These receivers, while not completely immune to the LightSquared interference, were much more jam resistant than wideband multi-frequency GNSS receivers. These receivers had degraded C/N0 while close (<200 meters) to the tower but were never completely jammed so that they would not track GPS L1 signals. The wider band multi-frequency GNSS/OmniStar receivers were completely jammed at various ranges from the LightSquared cell tower.

Sincerely,

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